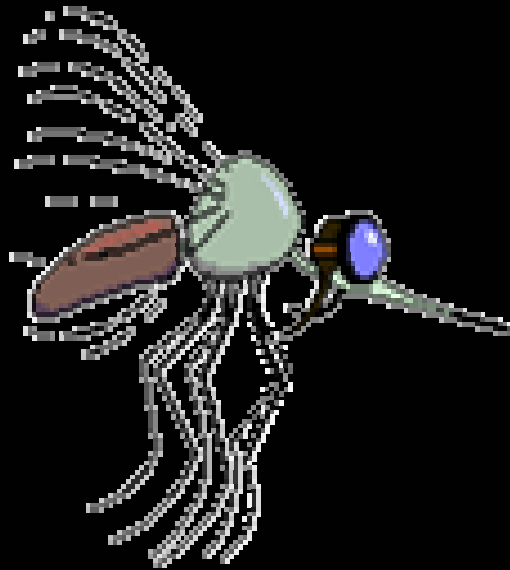
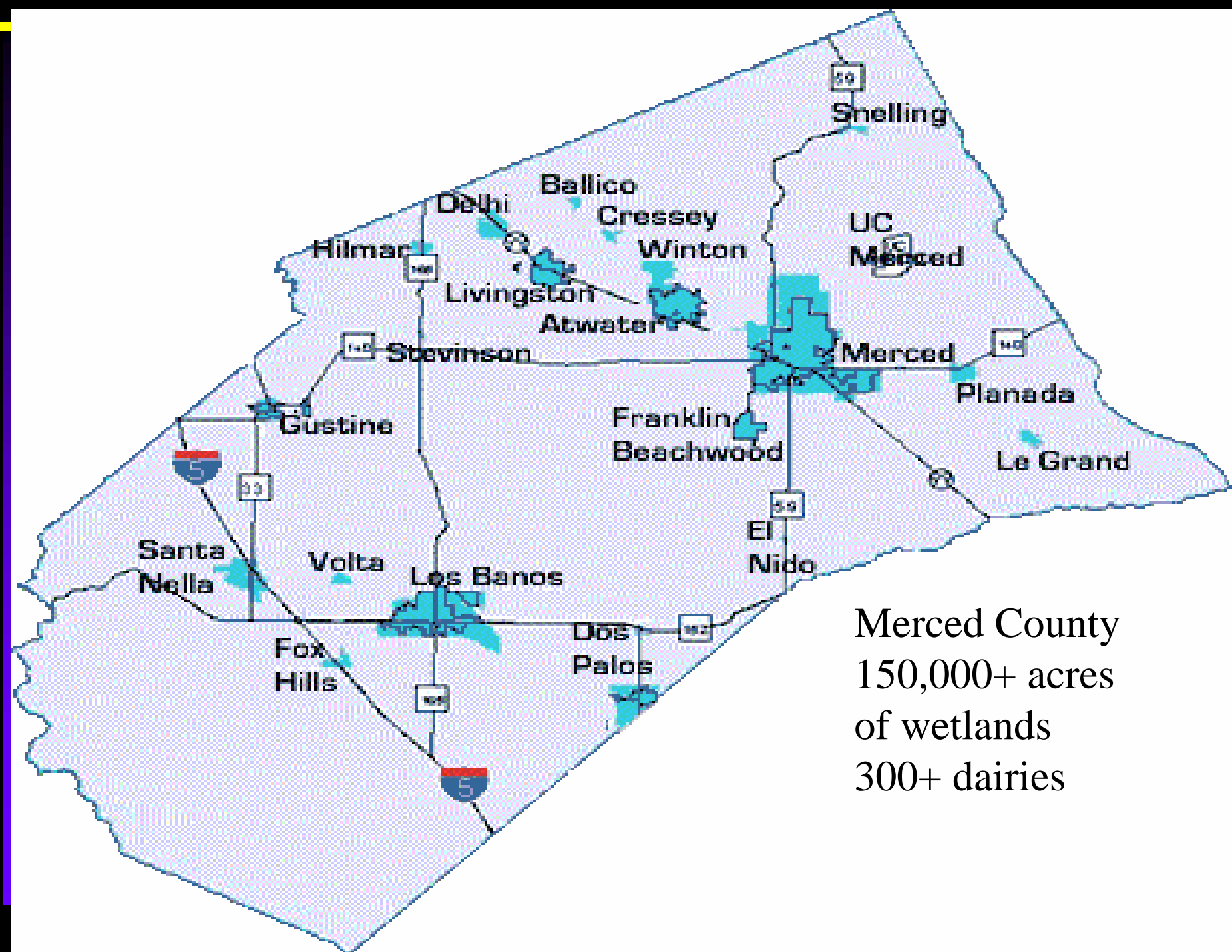


WEST NILE VIRUS 2005



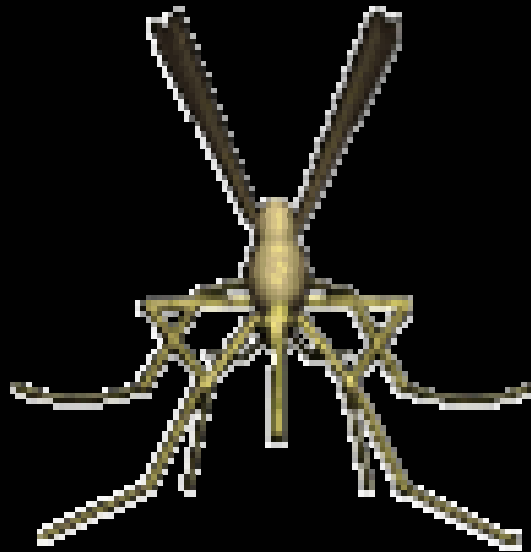
MERCED COUNTY MOSQUITO
ABATMENT DISTRICT



Merced County
150,000+ acres
of wetlands
300+ dairies



DISTRICT PREPARATIONS





Aerial Application Over Congested Area for Mosquito Control

Application

No certificate may be issued unless a completed application form has been received (14 C.F.R. 91, 101, and 105).



U.S. Department of Transportation
Federal Aviation Administration

APPLICATION FOR CERTIFICATE OF WAIVER OR AUTHORIZATION

For Approved: O.M.B. No. 2120-0027

APPLICANTS — DO NOT USE THESE SPACES

Region	Date
Action <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved — Explain under "Remarks"	
Signature of authorized FAA representative	

INSTRUCTIONS

Submit this application in triplicate (3) to any FAA Flight Standards district office.

Applicants requesting a Certificate of Waiver or Authorization for an aviation event must complete all the applicable items on this form and attach a properly marked 7.5 series Topographic Quadrangle Map(s), published by the U.S. Geological Survey (scale 1:24,000), of the proposed operating area. The map(s) must include scale depictions of the flightlines, showlines, race courses, and the location of the air event control point, Police dispatch, ambulance, and fire

fighting equipment. The applicant may also wish to submit photographs and scale diagrams as supplemental material to assist in the FAA's evaluation of a particular site. Application for a Certificate of Waiver or Authorization must be submitted 45 days prior to the requested date of the event.

Applicants requesting a Certificate of Waiver or Authorization for activities other than an aviation event will complete items 1 through 8 only and the certification, item 15, on the reverse.

1. Name of organization Merced County Mosquito Abatement District			2. Name of responsible person Allan D. Inman	
3. Permanent mailing address	House number and street or route number P.O. Box 909	City Merced	State and ZIP code CA 95340	Telephone No. (209) 722-152
4. FAR section and number to be waived FAR 91.119 B&C				
5. Detailed description of proposed operation (Attach supplement if needed)				
6. Area of operation (Location, altitudes, etc.) City of Merced, Dos Palos, Los Banos, Gustine, Atwater Livingston, 200 feet above ground level				
7a. Beginning (Date and hour)			b. Ending (Date and hour)	
8. Aircraft make and model (a)	Pilot's Name (b)	Certificate number and rating (c)	Home address (Street, City, State) (d)	
Cessna M-337B	Vincent Jannsens	2007423 Com, Smel, Inst./Instructor	6701 E. Mariposa Way Merced, CA 95340	

Item #5 of the application for a certificate of waiver FAA Form #2120-0027

To conduct aerial application of a mosquito control agent over the multiple townships of the county of Merced, California. Namely, the cities of Merced, Atwater, Livingston, Los Banos, Dos Palos and Gustine and congested unincorporated areas.

These applications will be preformed with a multi-engine aircraft (Cessna M-337B) white with red markings and the words "MOSQUITO CONTROL" on the underside of the wings.

We will be flying at an altitude of 200 fee A.G.L. beginning at sundown and continuing for two hours. No application will be performed in weather conditions less then V.F.R. and in wind speed more then 10 M.P.H.

The operation will consist of flying spray swath starting on the downwind side of the area to be treated and every 1000 feet in spacing until completed (see attached maps). These applications will be accomplished for the purpose of controlling mosquitoes that potentially vector viruses endangering public heath.

Prior notification will be given to the citizens of the area to be treated by either radio broadcasting or public notice in the local newspaper.

Attached are the resolutions granting the Merced Co. M.A.D. permission to operate its mosquito control aircraft over the incorporated limits of the cities name above.

Prior Approval from Appropriate Officials

Sample Letter

CITY OF MERCED
MERCED COUNTY
STATE OF CALIFORNIA

The Manager of the City of Merced hereby grants permission to the Merced County Mosquito Abatement District (MCMAD) to operate its twin-engine Cessna 337-B aircraft over the incorporated limits of the City of Merced for the purpose of abating pest and disease bearing mosquitoes, provided that the aircraft and pilot(s) meet all applicable Federal Aviation Administration (FAA) requirements; that the MCMAD Plan of Operation is on file with the FAA at the time the applications are made; and that only Environmental Protection Agency (EPA) approved pesticides will be used in aerial mosquito control operations. This letter will be incorporated into the district's Plan of Operation, which is on file with the FAA and is periodically updated.

Multi-Engine Aircraft



Public Notice

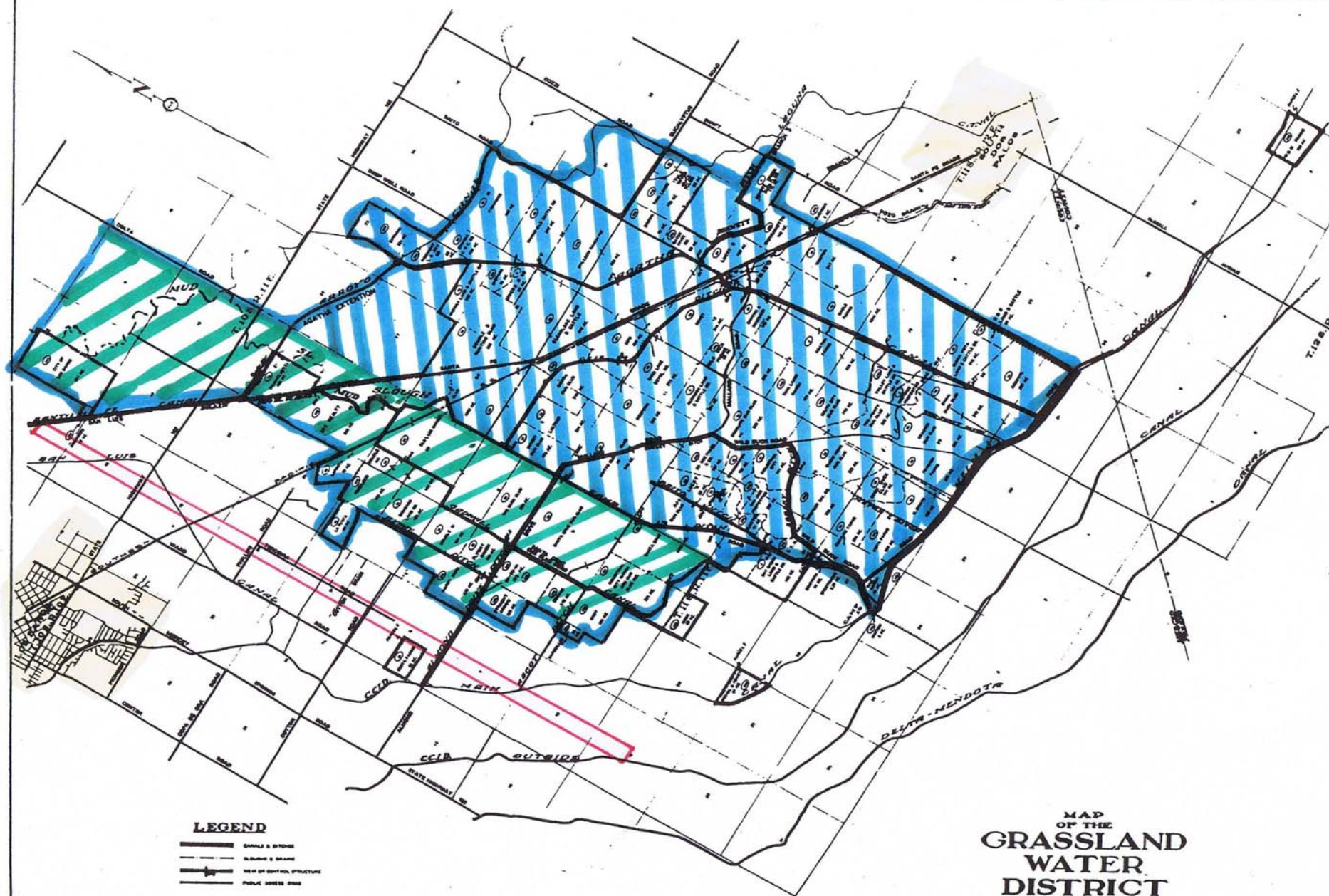
Merced County Mosquito Abatement District will be flying the districts twin-engine aircraft for MOSQUITO CONTROL over the city of Merced.

The district's aircraft is a white twin-engine Cessna 337 with red trim. The words "MOSQUITO CONTROL" are on the underside of the wings of the aircraft in large letters.

If you have questions concerning the operation of the aircraft, please call the Merced County Mosquito Abatement District at (209) 722-1527 between 6:30 am and 3:00pm Monday through Friday, or write to :
MERCED COUNTY MOSQUITO ABATEMENT
DISTRICT, P.O. BOX 909, MERCED, CA 95341

"A Statistical Model of the Dynamics of a Mosquito Vector Population"

- An adulticide that continually reduces adult daily survival from 85 to 79 percent greatly affects the population size. This relatively small decrease in the survival rate persisting for an entire spring and summer will thus reduce the *Culex tarsalis* populations by over 90 percent. Such a reduction is important in the prevention of arthropod-borne diseases. The key to such a major reduction in population is the use of adulticides beginning when the first *Culex tarsalis* generation emerges.
- T. Moon UC-Berkeley

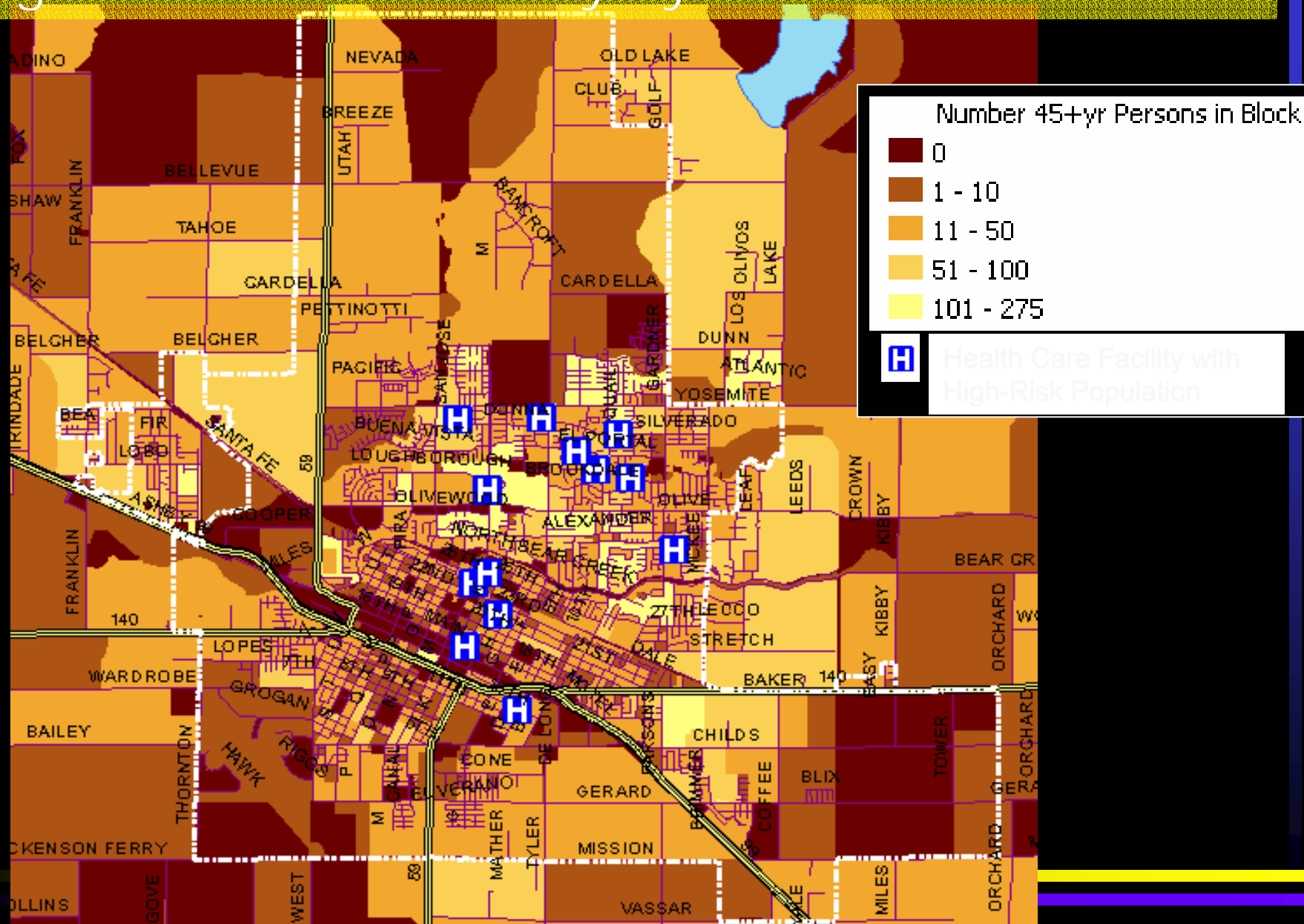


MAP
OF THE
**GRASSLAND
WATER
DISTRICT**
SOUTHERN DIVISION
SCALE: 1 INCH = 2000 FEET
JULY 1966

Results

- Aerial applications targeting *Culex tarsalis* populations throughout the season resulted in an 85% and 77% reductions from the 5-year historical average over a six week peak population period in the fall of 2004 and 2005, respectively.

Census 2000 Population distribution of Persons Aged 45+ in Merced City By Block and Institution



Brief History of Barrier Treatments

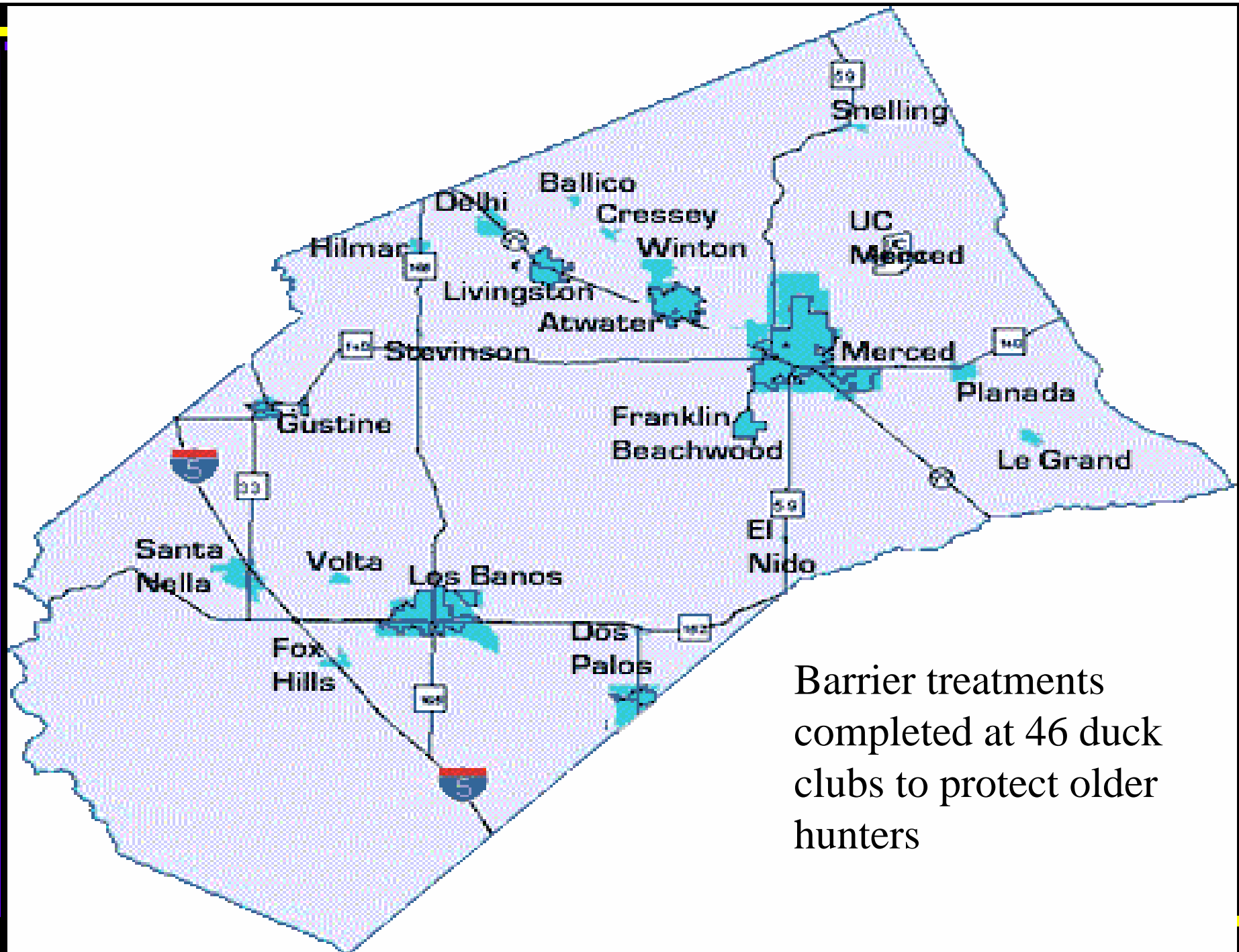
- DDT (5%) applied to field foliage by compressed air sprayer: ~90% control of *Aedes* for 33d
Madden et al. 1945 Mosq. News 5: 100-104
- Permethrin applied to lawns reduced *Aedes* landing counts by 63% at 2d Helson & Surgeoner 1983 Mosq. News 43:164-169
- Permethrin applied to foliage reduced *Aedes* landing counts by 90% at 2d, 30% at 8d Anderson et al. 1991 J. AMCA 7:116-117
- Deltamethrin applied to foliage reduced *Anopheles* trapped by 96% thru 8d Perich et al. 1993 Med Vet Entomol 7: 363-368

TalstarOne™ Barrier Treatment in Merced, CA Treatment



96 oz/ min delivery
Ag-Air Mist Sprayer
40-PSI nozzle pressure
Droplets = 52 micron dia



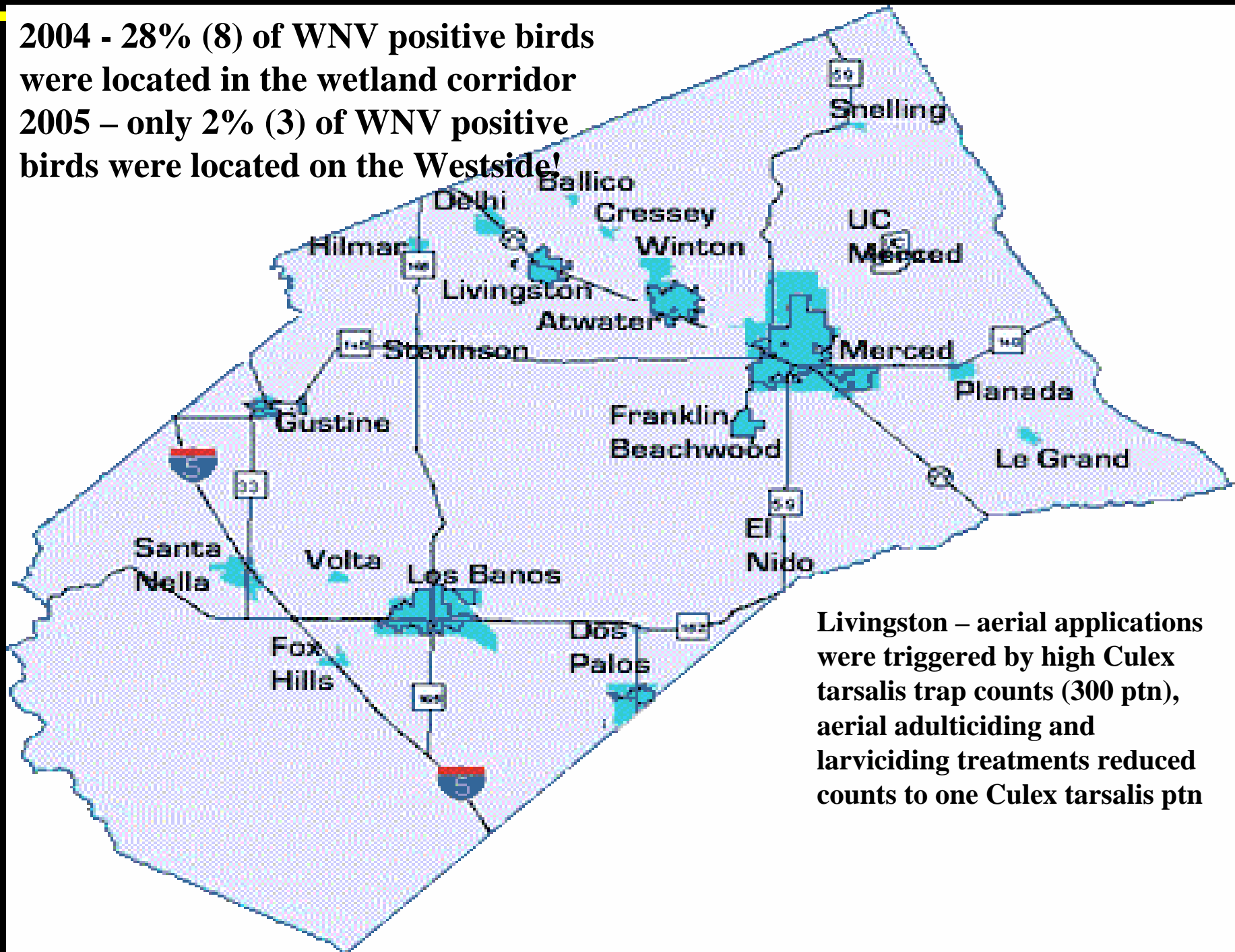


Barrier treatments
completed at 46 duck
clubs to protect older
hunters



Mapping and treating of crow roosts were problematic

**2004 - 28% (8) of WNV positive birds
were located in the wetland corridor
2005 – only 2% (3) of WNV positive
birds were located on the Westside!**



**Livingston – aerial applications
were triggered by high Culex
tarsalis trap counts (300 ptn),
aerial adulticiding and
larviciding treatments reduced
counts to one Culex tarsalis ptn**



Vietnam veteran
now a WNV
veteran.

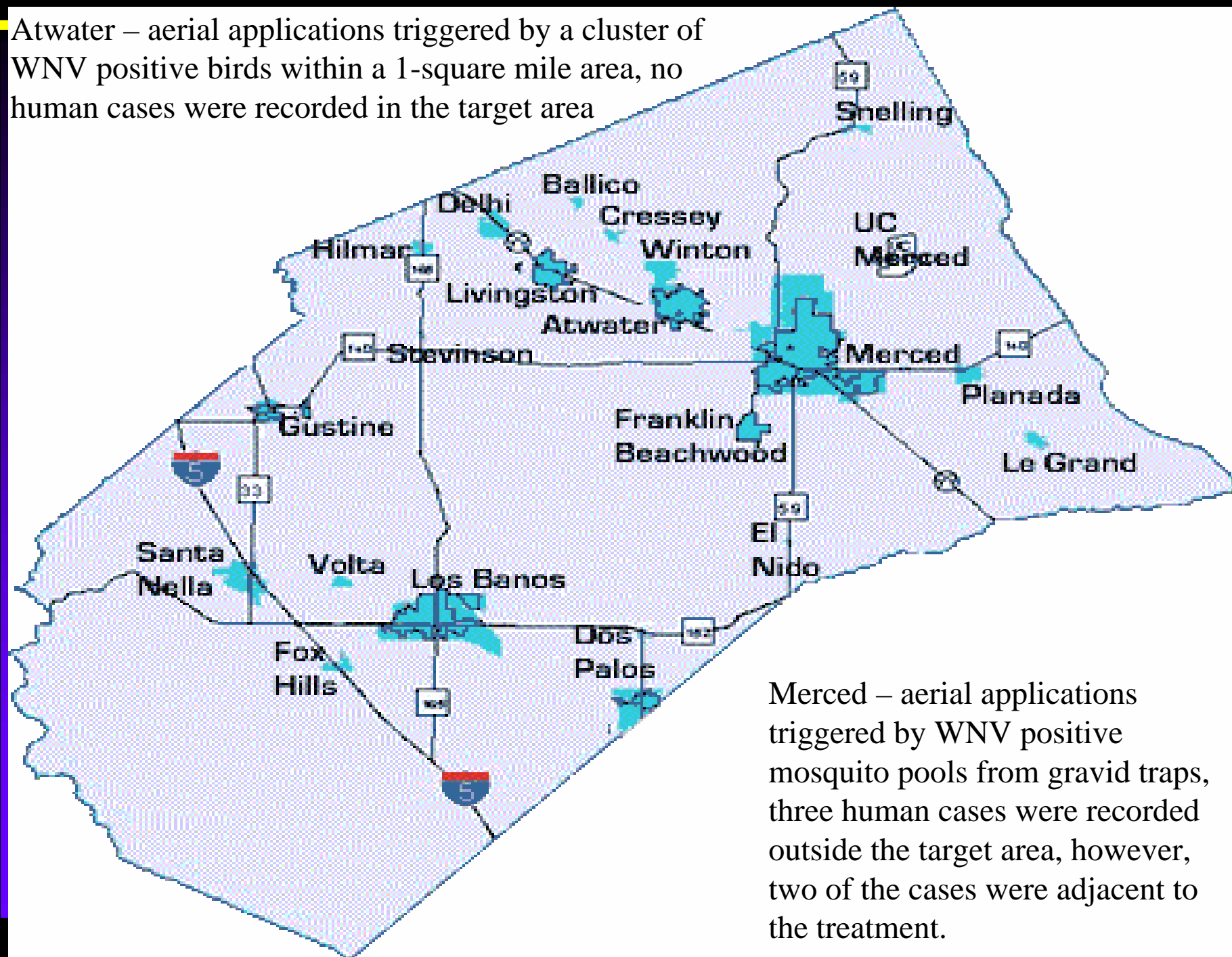
Cessna 337-02

- We apply Pyrenone at a rate of 0.64 oz/ac undiluted
- Swath:1000'
- Speed:140 M.P.H.
- Flow:179 oz/min
- Altitude:200' Pressure: 28 P.S.I.
- Delivery system: 2 Micronair AU5000 turning at 10,000 R.P.M. producing 30 to 40 micron droplets

Stacking grids

- For smaller congested area, we use this method of treatment to avoid flying directly over town.
- These usually start at 4000' upwind from the edge of town (depending on the wind) at an altitude of 200'. The next pass is made on the same path but at an altitude of 250' and so on until the desired area is covered

Atwater – aerial applications triggered by a cluster of WNV positive birds within a 1-square mile area, no human cases were recorded in the target area

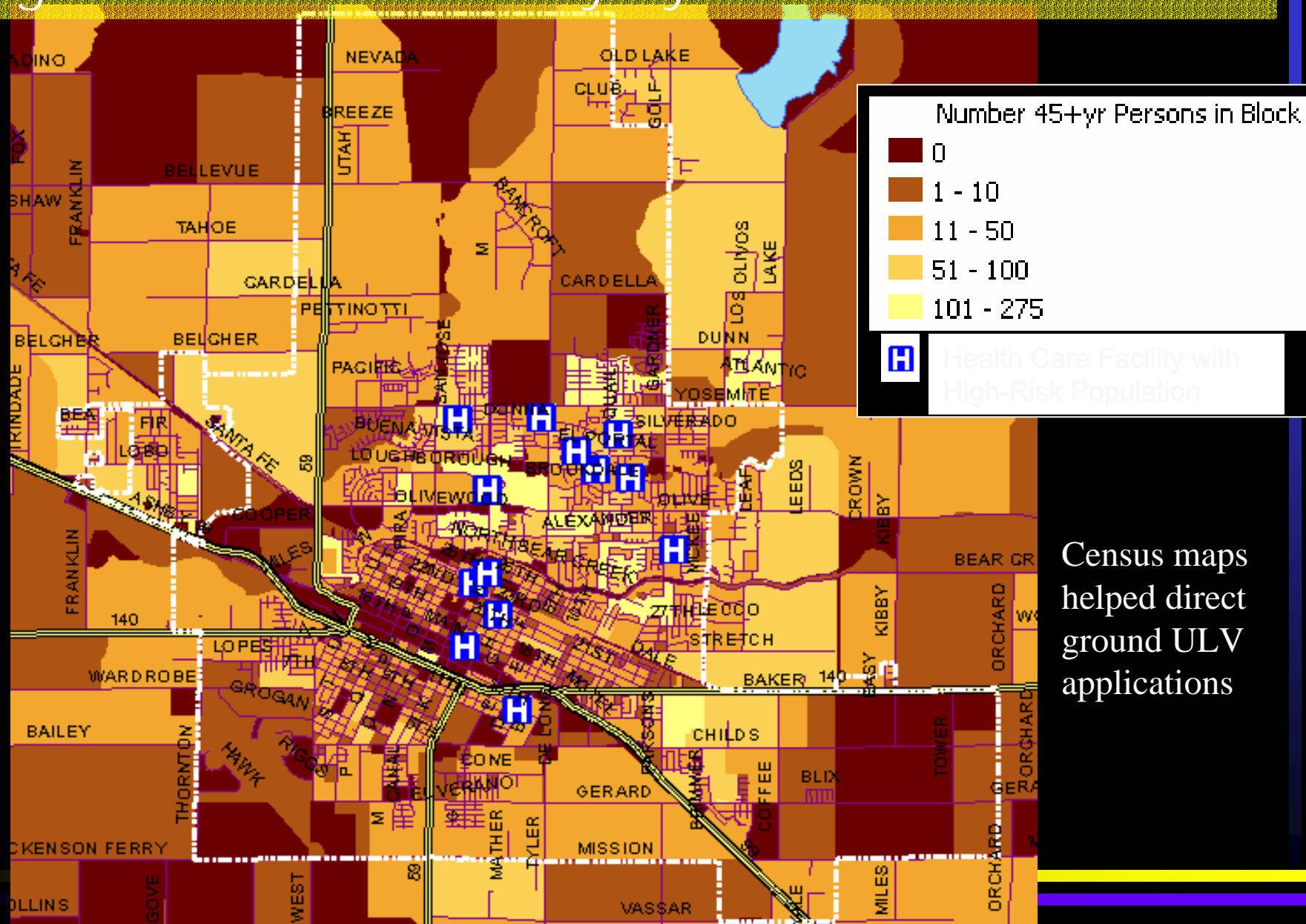


Merced – aerial applications triggered by WNV positive mosquito pools from gravid traps, three human cases were recorded outside the target area, however, two of the cases were adjacent to the treatment.

Residential spray grids

- These grids are pre-surveyed for obstacles and are directly over cities
- They consist of spray swath every 1000' starting about 4000' up wind from the edge of the desired target area on the down wind side (depending on wind speed) and extending 4000' upwind on the other side of the grid.

Census 2000 Population distribution of Persons Aged 45+ in Merced City By Block and Institution



No WNV cases were recorded from seventy-three assisted living facilities routinely treated with barrier sprays



Merced County M.A.D. aerial program



Aggressive early season control of *Culex tarsalis* kept Merced County from being the epicenter of WNV in 2005.